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EXAMINER

ALLEN, DENISE S

ART UNIT

PAPER NUMBER

2872

DATE MAILED: 11/06/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

09/843,398

Applicant(s)

LO ET AL.

Examiner

Denise S Allen

Art Unit

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 02 October 2002.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-46 is/are pending in the application.
- 4a) Of the above claim(s) 3-8, 21-25 and 37-46 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1, 2, 9-20 and 26-36 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 26 April 2001 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

**Priority under 35 U.S.C. §§ 119 and 120**

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 3.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other:

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## **DETAILED ACTION**

### ***Election/Restrictions***

Applicant's election of Species 1 in Paper No. 5 is acknowledged. Because applicant did point out any supposed errors in the restriction requirement, the election has been treated as an election without traverse (MPEP § 818.03(a)).

Claims 3 – 8, 21 – 25, and 37 – 46 are withdrawn from further consideration pursuant to 37 CFR 1.142(b) as being drawn to nonelected species, there being no allowable generic or linking claim. Election was made **without** traverse in Paper No. 5.

### ***Drawings***

The drawings are objected to as failing to comply with 37 CFR 1.84(p)(5) because they include the following reference sign(s) not mentioned in the description: Figure 9 references 11 and 12 and Figure 10 reference 20.

The drawings are objected to as failing to comply with 37 CFR 1.84(p)(5) because they do not include the following reference sign(s) mentioned in the description: reference 142" on page 12 line 1.

A proposed drawing correction, corrected drawings, or amendment to the specification, are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.

### ***Specification***

The disclosure is objected to because of the following informalities:

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The phrase "thermal date" on page 10 line 9 is unclear because it is neither well known in the art or defined in the specification. Suggested correction: replace the phrase "thermal date" with the phrase "thermal state".

The paragraph on page 13 lines 26 – 27 is unclear because it indicates the fiber grids being affixed to the substrate where the preceding paragraph and Figure 6 both indicate the fiber grids are not affixed to the substrate rather that the fiber is affixed to the substrate. Suggested correction: replace the phrase "fiber grids 68" with the phrase "optical fiber 66" throughout this paragraph.

Appropriate correction is required.

#### ***Claim Objections***

Claims 16 and 31 are objected to because of the following informalities:

The phrase "AB thermally cured adhesive" used in claims 16 (line 2) and 31 (line 2) is unclear because it is not well known or defined in the specification. For the purposes of examination, "AB thermally cured adhesive" is interpreted to be any thermally cured adhesive.

Appropriate correction is required.

#### ***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(e) the invention was described in-

(1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effect under this subsection of a national application published under section 122(b) only if the international application designating the United States was published under Article 21(2)(a) of such treaty in the English language; or

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(2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that a patent shall not be deemed filed in the United States for the purposes of this subsection based on the filing of an international application filed under the treaty defined in section 351(a).

Claims 1, 2, 10, 11, 12, 16, 17, 19, 26, 27, 33, and 35 are rejected under 35 U.S.C. 102(b) as being anticipated by Morey et al.

Regarding claims 1, 10, and 26, Morey et al teaches an optical fiber Bragg grating thermal compensating device including a substrate (Figure 3 reference 21), formed with an indent (references 23) having a first length (reference L1) and inherently having a first thermal expansion coefficient; a means for compressing optical fibers (Abstract lines 17 – 26); and an optical fiber (Figure 3 reference 10) embedded with grids (reference 13), the grid being affixed to the compressing means (references 26 and 27).

Regarding claims 2, 10, 26, and 27, Morey et al teaches the compressing means including a first metal block (Figure 3 reference 22) having a second thermal expansion coefficient that is much greater than the first thermal expansion coefficient (column 5 lines 39 – 43), and a second length smaller than the first length (Figure 3 reference L2), the first metal block being affixed to an end of the indent of the substrate (reference 30) such that a space is formed between the substrate and the metal block (Figure 3 space between references 21 and 22); and wherein the optical fiber has a first end affixed to the first metal block (reference 27) and a second end affixed to an affixing member of the substrate (reference 26), the affixing member being located in the indent of the substrate and distant from the first metal block.

Regarding claim 11, Morey et al teaches the first metal block is in contact with part of the grids next to the first metal block (Figure 3 reference 27).

Regarding claim 12, Morey et al teaches the affixing member is an integral part of the substrate (Figure 2 reference 26).

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Regarding claims 16 and 17, Morey et al teaches the optical fiber is affixed to the substrate and the metal block by an adhesive (column 4 lines 35 – 38).

Regarding claims 19 and 35, Morey et al teaches the metal block is made of aluminum (column 6 lines 36 – 37).

Regarding claim 33, Morey et al teaches the step of applying tension to the optical fiber (column 5 lines 11 – 21).

Claims 1, 2, 10, 14, 15, 26, 28, and 29 are rejected under 35 U.S.C. 102(e) as being anticipated by Bulman et al.

Regarding claims 1, 10, and 26, Bulman et al teaches an optical fiber Bragg grating thermal compensating device including a substrate (Figure 3a reference 25), formed with an indent (the space inside reference 25) having a first length and inherently having a first thermal expansion coefficient; a means for compressing optical fibers (Abstract); and an optical fiber (Figure 3a reference 22) embedded with grids (reference 21), the grid being affixed to the compressing means (references 29 and 30).

Regarding claims 2, 10, and 26, Bulman et al teaches the compressing means including a first metal block (Figure 3a reference 23) having a second thermal expansion coefficient that is much greater than the first thermal expansion coefficient (Claim 2), and a second length smaller than the first length, the first metal block being affixed to an end of the indent of the substrate such that a space is formed between the substrate and the metal block (Figure 3a space between references 23 and 25); and wherein the optical fiber has a first end affixed to the first metal block (reference 29) and a second end affixed to an affixing member of the substrate (references 24 and

30), the affixing member being located in the indent of the substrate and distant from the first metal block.

Regarding claims 14, 28, and 29, Bulman et al teaches the affixing member is a second metal block (Figure 3a reference 24) having the second thermal expansion coefficient and a third length such that the sum of the second and third lengths is smaller than the first length such that a space remains between the two metal blocks when the first and second metal blocks are each affixed to opposing ends of the indent (Figure 3a the space between references 23 and 24).

Regarding claim 15, Bulman et al teaches the grids have an overall length being slightly smaller than the difference between the first length and the sum of the second and third length (Figure 3a reference 21).

### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 9 and 13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Morey et al in view of Thomas.

Morey et al teaches an optical fiber Bragg grating thermal compensating device as described above. Morey et al further teaches a manually adjusting means (column 6 lines 50 – 62) including first and second arms (Figure 3 references 28 and 29) integrally formed at one end of the substrate and spaced apart with each other along a longitudinal direction of the substrate (the space between reference 31) and a threaded rod (reference 30) engages the first and second

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arms, so that the first and second arms can move relatively along the longitudinal direction of the substrate when rotating the threaded rod (column 4 line 47 – column 5 line 11). Morey et al does not teach the threaded rod having a section of positive screw thread and a section of counter screw thread.

Thomas teaches a threaded rod (Figure 3 reference 12) having a section of positive screw thread (reference 13) and a section of counter screw thread (reference 14). The threaded rod of Thomas is used to move first and second arms (Figure 5 references 23 and 24) relatively along a direction. It would have been obvious to one of ordinary skill in the art at the time of the invention to use the threaded rod of Thomas in the manually adjusting means of Morey et al in order to make adjustments more quickly.

Regarding analogous art, it has been held that a prior art reference must either be in the field of applicant's endeavor or, if not, then be reasonably pertinent to the particular problem with which the applicant was concerned, in order to be relied upon as a basis for rejection of the claimed invention. See *In re Oetiker*, 977 F.2d 1443, 24 USPQ2d 1443 (Fed. Cir. 1992). In this case, it is clear that Thomas is not in the field of the applicant's endeavor (i.e. having the same classification as the application); therefore to be analogous art the limitations taught by Thomas and relied upon as a basis for this rejection must be reasonably pertinent to the particular features lacking in Morey et al. It would have been reasonable for one of ordinary skill in the art at the time of the invention to consider art classified as Joints and Connections (such as Thomas) in order to make an improvement on the manually adjusting means of Morey et al.

Claims 18, 20, 34, and 36 are rejected under 35 U.S.C. 103(a) as being unpatentable over Morey et al in view of Nasu et al.



Regarding claims 18 and 34, Morey et al teaches an optical fiber Bragg grating thermal compensating device as described above. Morey et al does not teach the substrate is made of quartz.

Nasu et al teaches the substrate of an optical fiber Bragg grating thermal compensating device is made of quartz (column 7 lines 52 – 54). It would have been obvious to one of ordinary skill in the art at the time of the invention to use the quartz of Nasu et al as the material for the substrate of Morey et al in order to have the thermal expansion coefficient of the substrate and the optical fiber be essentially the same (Nasu et al column 7 line 63 – column 8 line 6).

Regarding claims 20 and 36, Morey et al teaches an optical fiber Bragg grating thermal compensation device as described above. Morey et al does not teach the metal block is made of stainless steel.

Nasu et al teaches the metal block of an optical fiber Bragg grating thermal compensating device is made of stainless steel (column 7 lines 25 – 27). It would have been obvious to one of ordinary skill in the art at the time of the invention to use the stainless steel of Nasu et al as the material for the metal block of Morey et al in order to have a higher thermal expansion coefficient than the substrate material (Nasu et al column 7 lines 31 – 34).

Claims 30 – 32 are rejected under 35 U.S.C. 103(a) as being unpatentable over Morey et al in view of Dariotis et al.

Morey et al teaches an optical fiber Bragg grating thermal compensation device as described above. Morey et al does not teach the method of manufacturing this device including the step of placing the device under a thermal state.

Dariotis et al teaches the step of placing an optical fiber Bragg grating thermal compensation device under a thermal state (column 6 lines 8 – 10). It would have been obvious to one of ordinary skill in the art at the time of the invention to use the thermal state of Dariotis et al in the manufacturing of the thermal compensation device of Morey et al in order to establish the appropriate temperature compensation relationship (Dariotis et al column 6 lines 18 - 21).

Regarding claim 31, Morey et al teaches the optical fiber is affixed to the substrate and the metal block by adhesive (column 4 lines 35 – 38).

Regarding claim 32, the grids are inherently annealed during the step of placing the device under a thermal state described above.

### ***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Denise S Allen whose telephone number is (703) 305-7407. The examiner can normally be reached on Monday - Friday, 8:30am - 5:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Cassandra Spyrou can be reached on (703) 308-1687. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 872-9318 for regular communications and (703) 872-9319 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-1782.

Denise S Allen  
Examiner  
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dsa

November 4, 2002

  
**Cassandra Spyrou**  
**Supervisory Patent Examiner**  
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